



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/699,416

10/31/2003

Thomas Y-T. Tam

H0004478

2098

7590

06/01/2006

Honeywell International Inc.  
15801 Woods edge Road  
Colonial Heights, VA 23834

EXAMINER

BUTLER, PATRICK

ART UNIT

PAPER NUMBER

1732

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/699,416	TAM ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Patrick Butler	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 4, 15, 23 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-14 and 16-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>20031222</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election on 27 March 2006 of invention I (method) and species A (drawing the yarn at constant tension through the oven), with readable claims being 1-3, 5-14, and 16-22, is acknowledged.

Claims 4, 15, 23, and 24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention (Claims 23 and 24) and a nonelected species (Claims 4 and 15), there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 27 March 2006.

### ***Information Disclosure Statement***

The information disclosure statement filed 22 December 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. While Document Number EP 0 320 188 A2 is indicated on the IDS, it has not been provided.

The information disclosure statement filed 22 December 2003 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered. In this instance, Document Number JP-A-

Art Unit: 1732

60/52647 is not in the English language, and the IDS does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1-3 and 5-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 and 5-7 of copending Application No. 11/205,952. Although the conflicting claims are not identical, they are not patentably distinct from each other because Claims 1 and 3 are similar to Claims 1 and 3 of the copending application with the only difference being "about" two methyl groups, which would cause the two claims to overlap in scope. Claim 2 is similar to Claim 2 of the copending application because their ranges both overlap for

production greater than 2 g/min. and for the similarities as indicated in their dependencies as previously described. Claim 5 is similar to Claim 5 of the copending application in that the feed yarn has a tenacity that overlaps when it is greater than 6 g/d and for the similarities as indicated in their dependencies as previously described. Claims 6-9 are similar to Claim 6 of the copending application in that they both overlap when the range is 26-46 g/d and for the similarities as indicated in their dependencies as previously described. Claim 11 is similar to Claim 7 of the copending in that the both overlap when the feed yarn has i.v. greater than 12 g/d and when the feed yarn has a tenacity above 21 g/d and for the similarities as indicated in their dependencies as previously described.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-8, 10-14, 16-19, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Kavesh et al. (U.S. Patent No. 4,551,296).

With respect to Claim 1, Kavesh teaches a process for drawing a multifilament gel-spun polyethylene with 22.6 IV (5 dl/g-35 dl/g) (see col. 23, lines 51-59) and extracting the first and second solvent from the filament (fewer than two methyl groups

Art Unit: 1732

per thousand carbon atoms, and less than 2 wt. % of other constituents) (see Kavesh, Claim 1), passing said feed yarn at a speed of  $V_1 = 100 \text{ cm/min} = 1 \text{ m/min}$  into a heated tube (oven) having a length of  $L = 1.5 \text{ meters}$  at a temperature of  $150^\circ\text{C}$  ( $130^\circ\text{C}$  -  $160^\circ\text{C}$ ) (see col. 25, lines 12-40; col. 17, line 28; Example 533), passing said feed yarn continuously through said tube to have a stretch ratio of 2.5, which would necessarily provide an exit velocity of  $V_2 = 2.5 \text{ m/min}$ , which would provide the following calculations:

$$L/V_1 = 1.5 \text{ m} / 1 \text{ m/min} = 1.5 \text{ min} \quad (0.25 \leq L \leq 20, \text{ min})$$

$$V_2/V_1 = \text{stretch ratio} = 2.5 \quad (1.5 \leq V_2/V_1 \leq 20)$$

$$(V_2 - V_1)/L = (2.5 \text{ m/min} - 1 \text{ m/min}) / 1.5 \text{ min} = 1 \text{ min}^{-1} \quad (1 \leq (V_2 - V_1)/L \leq 60, \text{ min}^{-1})$$

$$2L/(V_1 + V_2) = 2 * 1.5 \text{ m} / (1 \text{ m/min} + 2.5 \text{ m/min}) \approx 0.86 \text{ min} \quad (0.55 \leq 2L/(V_1 + V_2) \leq 10, \text{ min})$$

The air inside the tube would necessarily be, and least to some degree, a forced convection at the surface of the fiber because the fiber is moving relative to the tube's air (forced air movement at the surface of the fiber) and has a temperature gradient to the air in the tube (convection via the temperature difference between the air and the moving fiber).

With respect to Claim 2, Kavesh teaches that the yarn for Example 533's denier was 216 and was 48 filaments. The mass throughput is therefore approximately:

$$216 \text{ denier} * (1 \text{ g} / 9000 \text{ m}) / \text{denier} * 2.5 \text{ m/min} = 0.06 \text{ g/min}$$

Art Unit: 1732

This is for 48 filaments, but Kavesh teaches the production of yarns of 16, 120, and 240 filaments (see col. 7, lines 57-59), which would yield a mass flow of 0.02 g/min, 0.15 g/min, and 0.3 g/min, which would read on the claim (greater than 0.25 g/min).

With respect to Claim 3, as the fibers are passing through a tube unassisted by rollers inside the tube, no increasing tension aside from air drag would occur.

With respect to Claim 5, Kavesh teaches a process for drawing a multifilament gel-spun polyethylene with 22.6 IV (8 dl/g-30 dl/g) (see col. 23, lines 51-59) and extracting the first and second solvent from the filament (fewer than one methyl groups per thousand carbon atoms, and less than 1 wt. % of other constituents) (see Kavesh, Claim 1). Kavesh teaches that the tenacity of the feed yarn is 21 g/d (5-76 g/d) (see Example 523 used to feed Example 533).

With respect to Claims 6-8, Kavesh teaches that the feed yarn is 21 g/d (11-66 g/d [Claim 6], 16-56 g/d [Claim 7], 21-51 [Claim 8]) (see Example 523 used to feed Example 533).

With respect to Claim 10, Kavesh teaches a process for drawing a multifilament gel-spun polyethylene with 22.6 IV (10-25 dl/g) (see col. 23, lines 51-59).

With respect to Claim 11, Kavesh teaches a process for drawing a multifilament gel-spun polyethylene with 22.6 IV (12-20 dl/g) (see col. 23, lines 51-59) and extracting the first and second solvent from the filament (fewer than 0.5 methyl groups per thousand carbon atoms, and less than 0.5 wt. % of other constituents) (see Kavesh, Claim 1). Kavesh teaches that the tenacity of the feed yarn is 21 g/d (21-51 g/d) (see Example 523 used to feed Example 533).

Art Unit: 1732

With respect to Claim 12, Kavesh teaches a process for drawing a multifilament gel-spun polyethylene with 22.6 IV (5 dl/g-35 dl/g) (see col. 23, lines 51-59) and extracting the first and second solvent from the filament (fewer than two methyl groups per thousand carbon atoms, and less than 2 wt. % of other constituents) (see Kavesh, Claim 1), passing said feed yarn at a speed of  $V_1 = 100 \text{ cm/min} = 1 \text{ m/min}$  into a heated tube (oven) having a length of  $L = 1.5 \text{ meters}$  at a temperature of  $150^\circ\text{C}$  ( $130^\circ\text{C}$  -  $160^\circ\text{C}$ ) (see col. 25, lines 12-40; col. 17, line 28; Example 529), passing said feed yarn continuously through said tube to have a stretch ratio of 1.5, which would necessarily provide an exit velocity of  $V_2 = 1.75 \text{ m/min}$ , which would provide the following calculations:

$$L/V_1 = 1.5 \text{ m} / 1 \text{ m/min} = 1.5 \text{ min} \quad (1 \leq L \leq 20, \text{ min})$$

$$V_2/V_1 = \text{stretch ratio} = 1.5 \quad (1.5 \leq V_2/V_1 \leq 20)$$

$$(V_2 - V_1)/L = (2.5 \text{ m/min} - 1 \text{ m/min}) / 1.5 \text{ min} \approx 0.33 \text{ min}^{-1} \quad (0.01 \leq (V_2 - V_1)/L \leq 1, \text{ min}^{-1})$$

$$2L/(V_1+V_2) = 2 * 1.5 \text{ m} / (1 \text{ m/min} + 2.5 \text{ m/min}) = 1.2 \text{ min} \quad (1.1 \leq 2L/(V_1+V_2) \leq 10, \text{ min})$$

The air inside the tube would necessarily be, and least to some degree, a forced convection at the surface of the fiber because the fiber is moving relative to the tube's air (forced air movement at the surface of the fiber) and has a temperature gradient to the air in the tube (convection via the temperature difference between the air and the moving fiber).

Art Unit: 1732

With respect to Claim 13, Kavesh teaches that the yarn for Example 529's denier was 366 and was 48 filaments. The mass throughput is therefore approximately:

$$216 \text{ denier} * (1 \text{ g} / 9000 \text{ m}) / \text{denier} * 1.5 \text{ m/min} \approx 0.06 \text{ g/min}$$

This is for 48 filaments, but Kavesh teaches the production of yarns of 16, 120, and 240 filaments (see col. 7, lines 57-59), which would yield a mass flow of 0.02 g/min, 0.15 g/min, and 0.31 g/min, which would read on the claim (greater than 0.25 g/min).

With respect to Claim 14, as the fibers are passing through a tube unassisted by rollers inside the tube, no increasing tension aside from air drag would occur.

With respect to Claim 16, Kavesh teaches a process for drawing a multifilament gel-spun polyethylene with 22.6 IV (8 dl/g-30 dl/g) (see col. 23, lines 51-59) and extracting the first and second solvent from the filament (fewer than one methyl groups per thousand carbon atoms, and less than 1 wt. % of other constituents) (see Kavesh, Claim 1). Kavesh teaches that the tenacity of the feed yarn is 21 g/d (5-76 g/d) (see Example 523 used to feed Example 529).

With respect to Claims 17-19, Kavesh teaches that the feed yarn is 21 g/d (11-66 g/d [Claim 17], 16-56 g/d [Claim 18], 21-51 [Claim 19]) (see Example 523 used to feed Example 529).

With respect to Claim 21, Kavesh teaches a process for drawing a multifilament gel-spun polyethylene with 22.6 IV (10-25 dl/g) (see col. 23, lines 51-59).

With respect to Claim 22, Kavesh teaches a process for drawing a multifilament gel-spun polyethylene with 22.6 IV (12-20 dl/g) (see col. 23, lines 51-59) and extracting the first and second solvent from the filament (fewer than 0.5 methyl groups per

Art Unit: 1732

thousand carbon atoms, and less than 0.5 wt. % of other constituents) (see Kavesh, Claim 1). Kavesh teaches that the tenacity of the feed yarn is 21 g/d (21-51 g/d) (see Example 523 used to feed Example 529).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kavesh et al. (U.S. Patent No. 4,551,296).

With respect to Claim 9, Kavesh teaches a process for drawing as previously described as applied to Claim 5. However, the feed yarn's tenacity is 21 g/d.

Kavesh teaches that increased drawing provides for increased tenacity (compare col. SR and Ten g/d in col. 25, lines 30-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine increased stretching in Example 523 in order to obtain higher feed yarn tenacity in Example 533. The motivation would have been to obtain an overall higher tenacity.

With respect to Claim 20, Kavesh teaches a process for drawing as previously described as applied to Claim 12. However, the feed yarn's tenacity is 21 g/d.

Kavesh teaches that increased drawing provides for increased tenacity (compare col. SR and Ten g/d in col. 25, lines 30-40).

Art Unit: 1732

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine increased stretching in Example 523 in order to obtain higher feed yarn tenacity in Example 529. The motivation would have been to obtain an overall higher tenacity.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Butler whose telephone number is (571) 272-8517. The examiner can normally be reached on Mon.-Thu. 7:30 a.m. - 5 p.m. and alternating Fri.

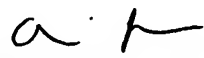
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1732

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Patrick Butler  
Assistant Examiner  
Art Unit 1732

  
CHRISTINA JOHNSON  
PRIMARY EXAMINER  
5/30/06